

Planning and Preparing for Dynamic Soil Properties Work

Group 2

**Discussion Leaders: Larry West, Karl Hipple,
Arlene Tugel, Susan Andrews, Chris Smith**

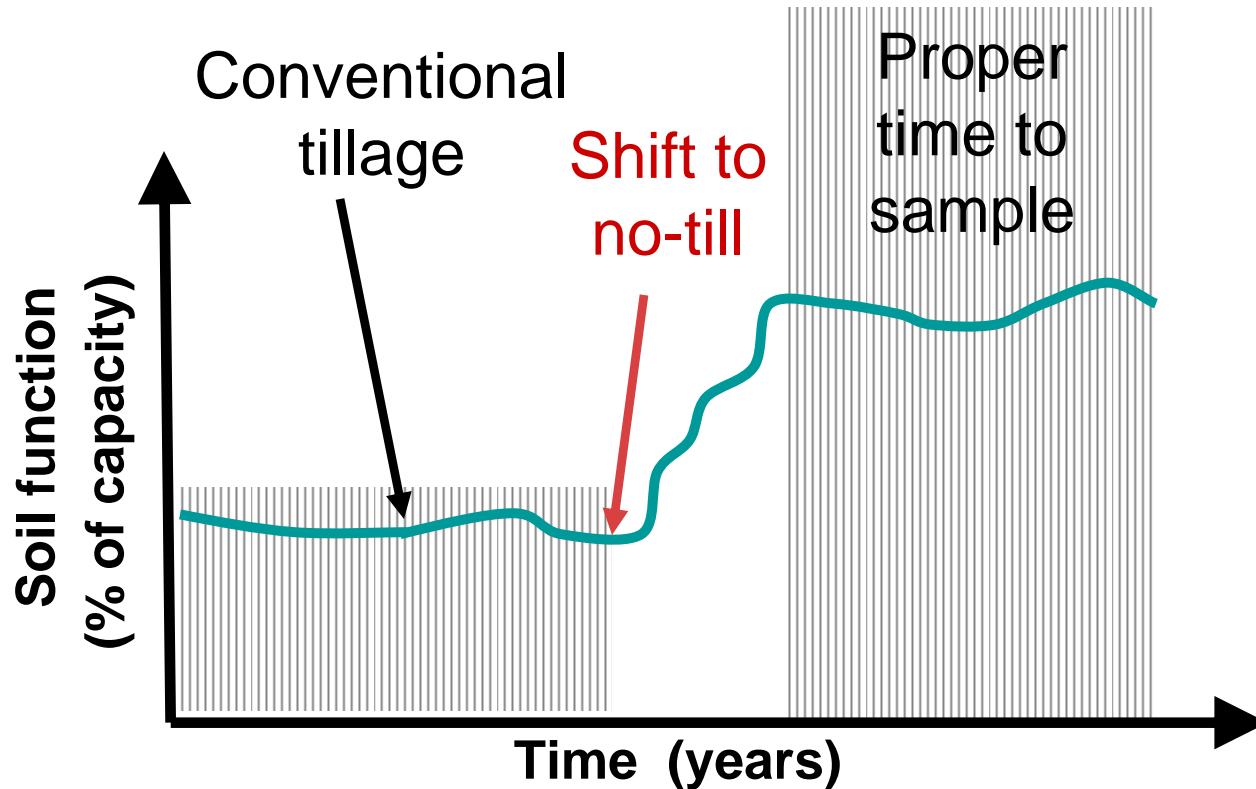
- A. Criteria for Selecting Benchmark Soils
(and important Ecological Sites)**

- B. What systems will we compare? (land cover type
and management)**

- C. Operational Questions**

What (and when) do we sample?

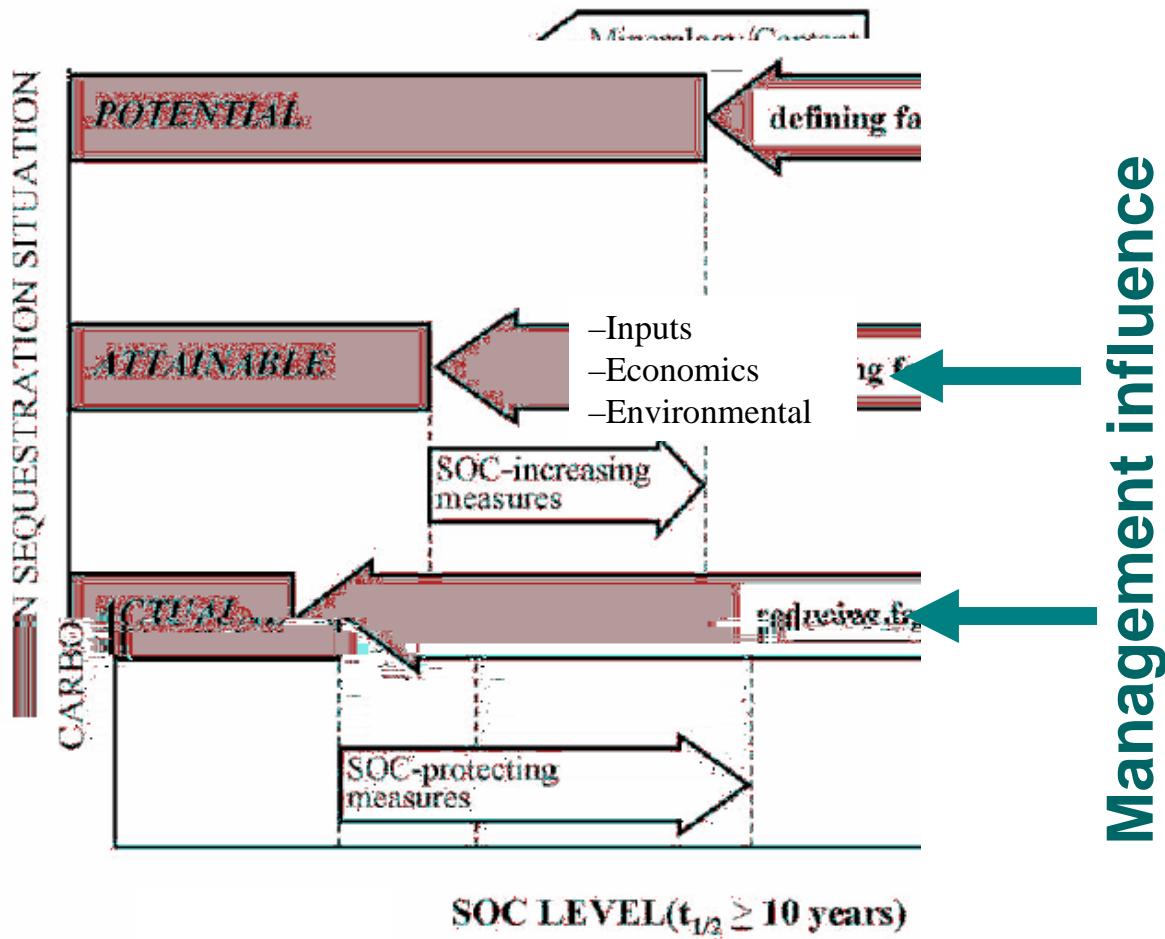
Answer: steady-state equilibrium



What systems do we sample?

Potential and the attainable (possible)

- Temperature/conc.
 - Depth
 - Stoniness
 - Bulk density
 - Aeration
-
- NPP and allocation
 - Climate (direct)
 - Climate (via NPP)
-
- Erosion
 - Tillage
 - Residue removal
 - Disrupted biology
 - Drainage
- ton ha⁻¹



After Ingram and Fernandes, 2001

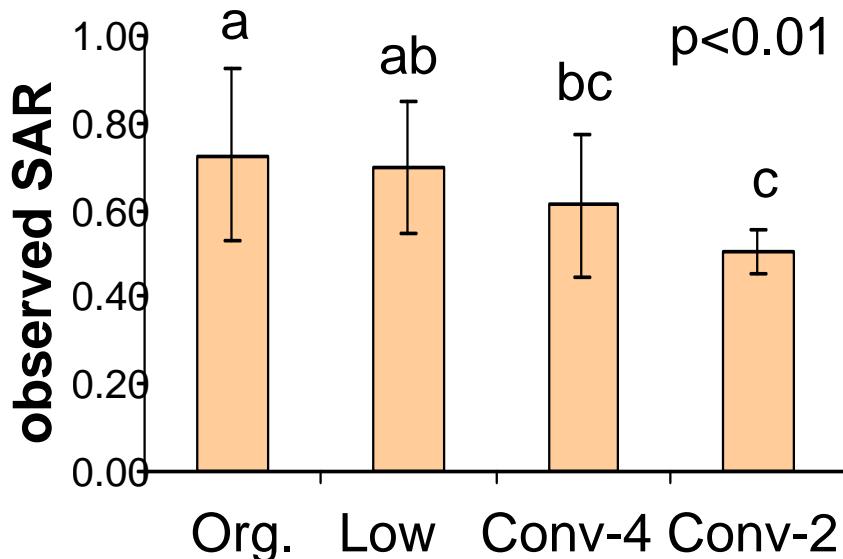
Recommended reading

- Understanding soil change (Richter and Markewitz, 2001)
- State and transition modeling (Stringham, et al, 2003, JRM)
- Soil change, soil survey and resource decision making (Tugel, et al., 2005, SSSAJ)
- Glossary, Soil Quality Thunderbook,
<http://soils.usda.gov/sqi/concepts/thunderbook.html>

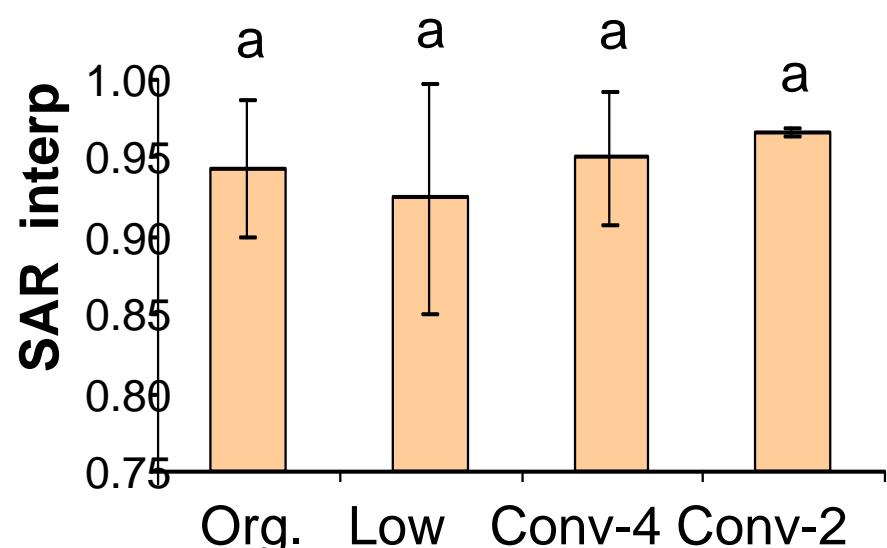
Sodium Absorption Ratio

SAFS Experiment near Davis, CA

measured property

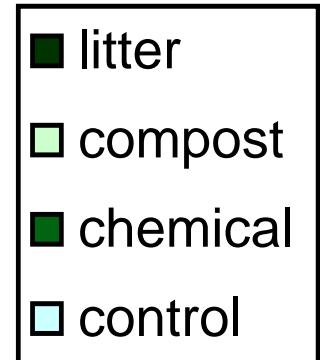


function interpretation

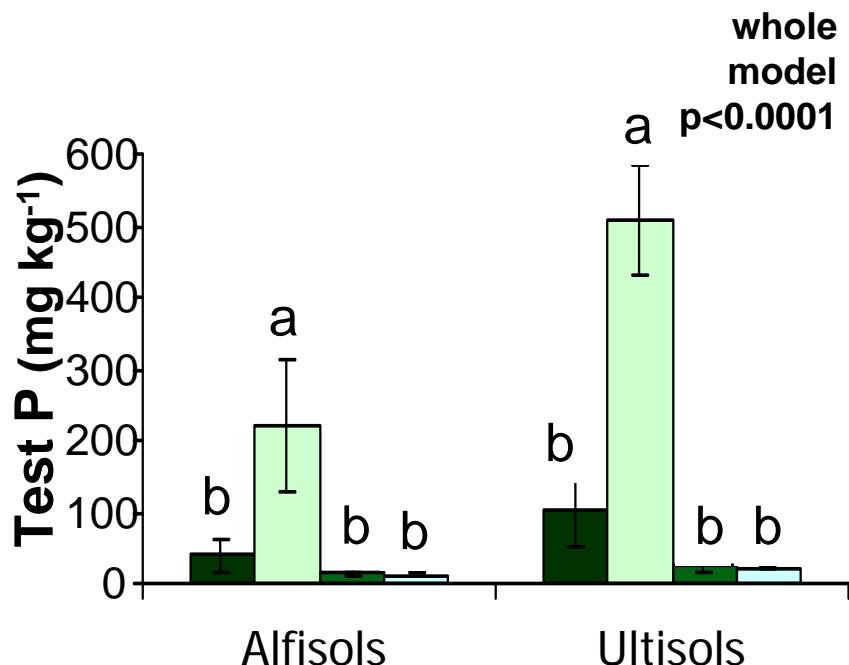


Observed range, although significantly different among systems, did not result in change in function, i.e. no soil dispersion, no yield loss, interp is n.s.d. in function

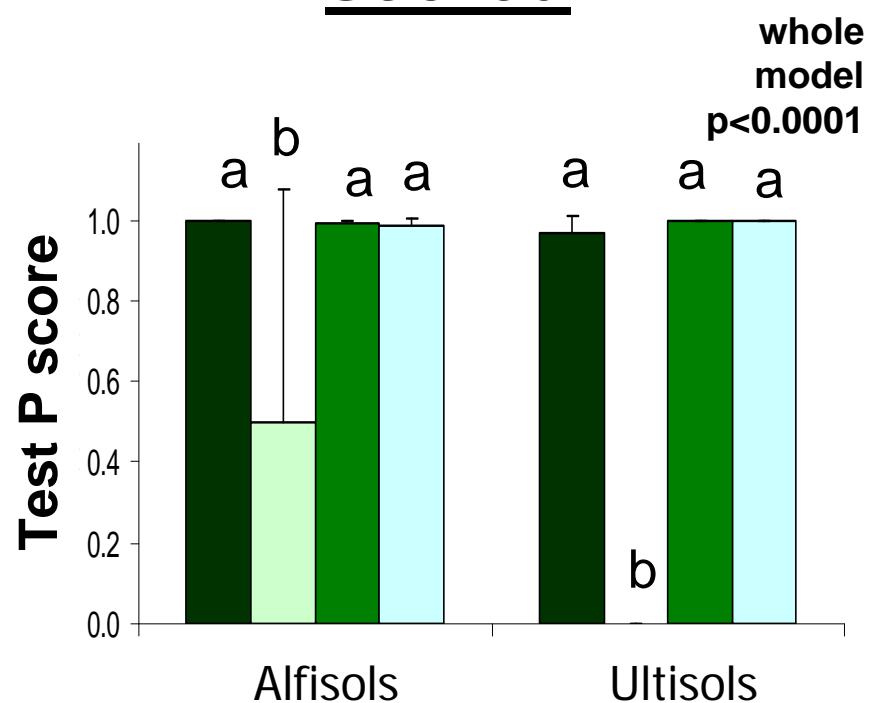
Soil Test P on 2 GA soils



observed



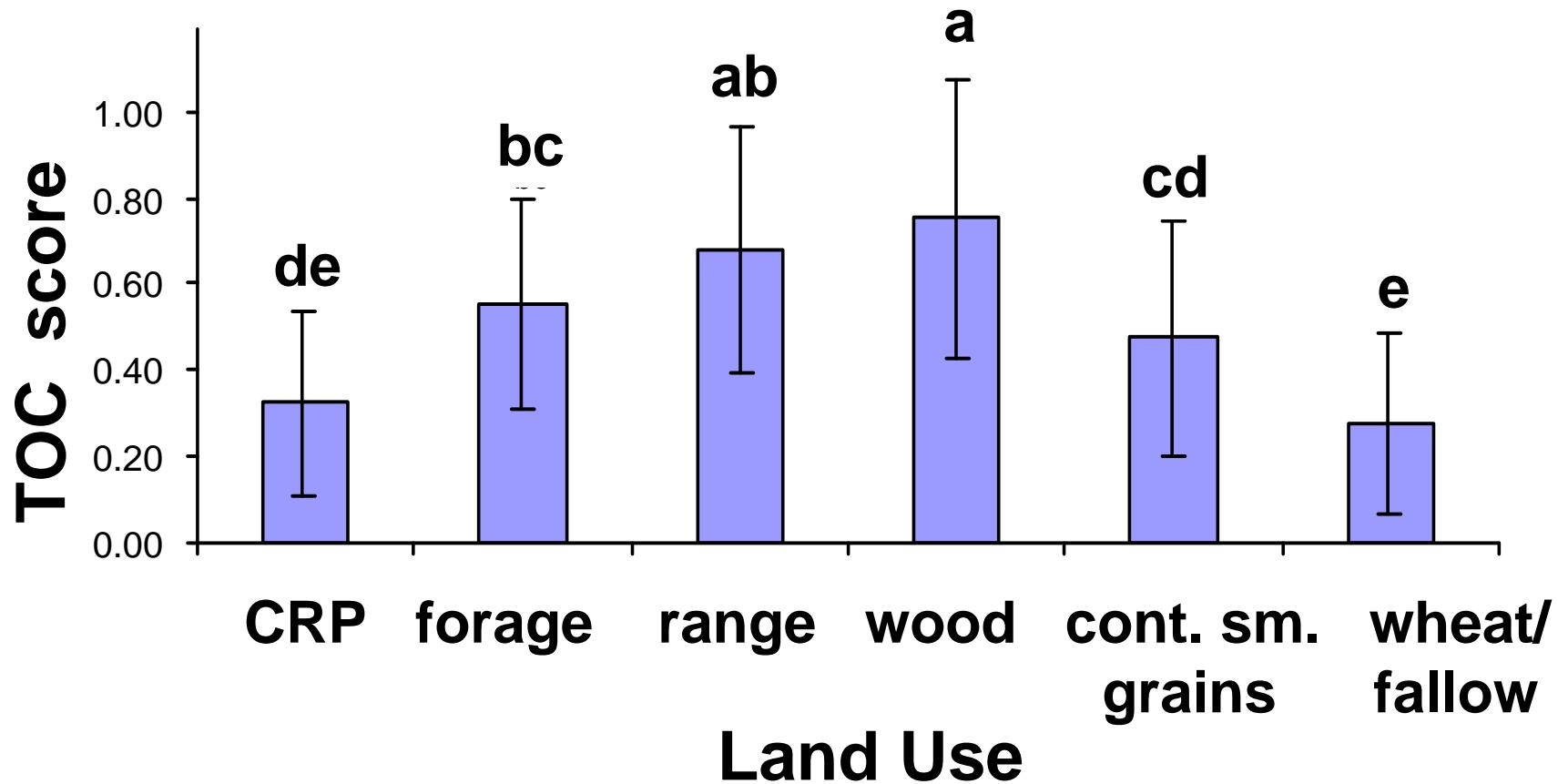
scored



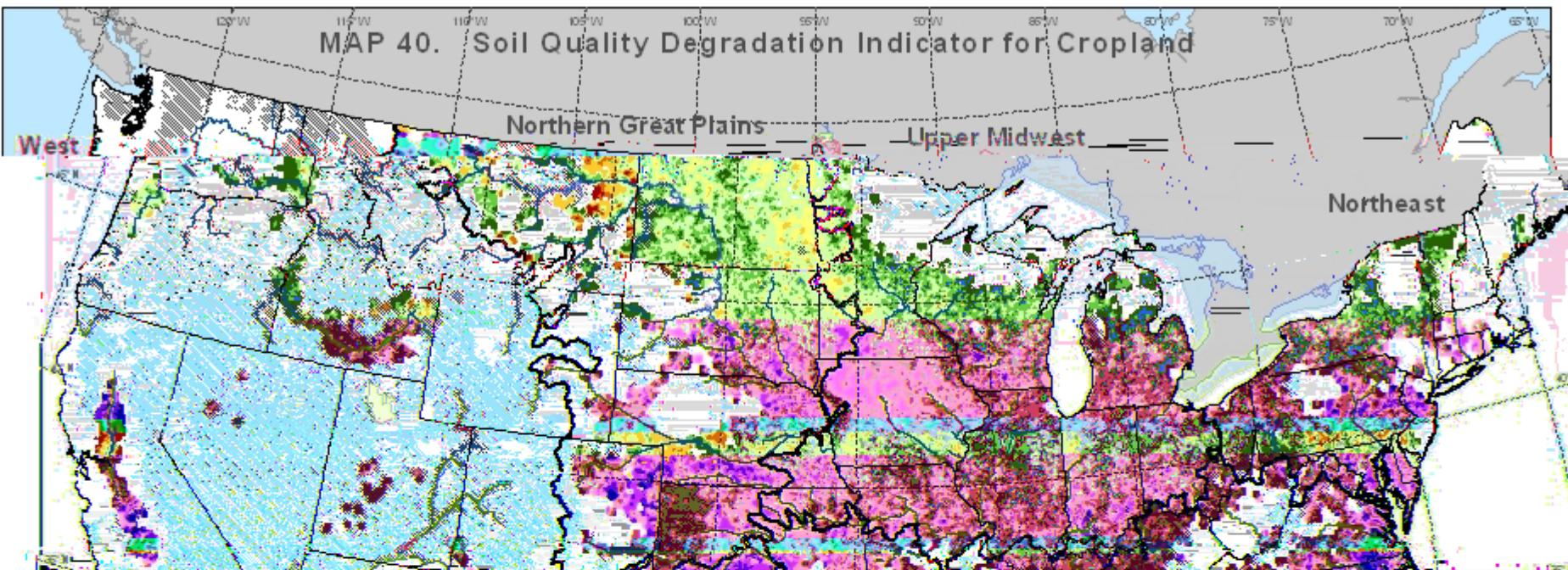
NRI 1996 Results:

Total

Organic C
All land uses



MAP 40. Soil Quality Degradation Indicator for Cropland



Contact Info:

Susan Andrews
336 370-3337 (office)
susan.andrews@gnb.usda.gov